



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960  
APR 25 2011

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Heath A. Lovell  
River View Coal, LLC  
771 Corporate Drive  
Suite 1000  
Lexington, Kentucky 40503

Re: Modification to UIC Permit No. KYV0051  
Effective: MAY 25 2011  
Permit Writer: George Ford

Dear Mr. Lovell:

Enclosed is the Underground Injection Control permit modification referenced above. Please replace the appropriate permit page(s) with the enclosed page(s). This action constitutes the U. S. Environmental Protection Agency's final permit decision in accordance with 40 C.F.R. §124.15(a).

Under 40 C.F.R. §124.19, any person who filed comments on the draft permit or participated in the public hearing may contest this decision by petitioning the Administrator to review any condition of the permit decision. In this case, since no public hearing was held and no comments were filed during the public notice period, no appeal may be taken regarding this decision. Pursuant to 40 C.F.R. §124.15(b), this permit will be effective as specified in the permit.

Information on legal matters may be obtained by contacting Wilda Cobb, Office of Environmental Accountability at (404) 562-9530.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Giattina".

James D. Giattina  
Director

Water Protection Division

Enclosure

## PART I

### WELL SPECIFIC CONDITIONS

#### SECTION A. AREA AND WELLS AUTHORIZED

1. Area Within Which Underground Injections are Authorized

The permittee is authorized to construct, operate and plug and abandon six (6) Class V coal slurry injection wells at the Ohio #11 mine abandoned workings in Union County, Kentucky. This project area is delineated in the UIC Permit Application on project location map Sheet KY. No. 11 Old Works Map (Attachment A) and the Sloughs Wildlife Management Area, Jenny Hole – Highland Creek Unit Map with an approximate center at:

Latitude 37° 43' 43.3044"  
Longitude 87° 56' 52.1100"

2. Specific Wells Authorized for Construction and Operation

The following wells are specifically authorized by this permit for construction and operation within the permitted area:

Six (6) coal slurry injection wells which inject through the roof of the abandoned mine into an isolated abandoned area (works) of the Ohio #11 Mine Workings, KY. No. 11 Coal Seam.

#### SECTION B. CONSTRUCTION REQUIREMENTS

1. Injection Well Construction

Injection wells will be constructed in three stages. In the first stage, the permittee will drill a borehole large enough to accommodate a 13 3/8 inch casing. This casing will be landed at the base of the unconsolidated rock and cemented back to surface with a continuous column of cement. Once the cement on the 13 3/8 inch casing has hardened, the permittee will drill a borehole large enough to accommodate an 8 inch casing from the base of the unconsolidated rock to within 10 feet of the mine roof. The permittee will place the 8 inch casing into the borehole from total depth to surface and place a continuous column of cement from total depth to surface. Once the cement has hardened, the permittee will then extend the borehole through the roof of the mined out works.

The additional 5 (five) injection wells added by this permit modification will be constructed in the following manner:

A small diameter pilot hole will be extended from surface into the slurry area. A packer will be set approximately five (5) feet from the roof of the mine slurry area. A suitable sized drill bit will be used to ream out the pilot hole to within five (5) feet of the packer. Suitable casing will be run and landed at the bottom of the expanded borehole. The casing will be filled with Class A cement and a second packer will be used to push the cement down the casing and up the backside of the casing. After cement is observed on the backside of the casing at surface, the second packer will be removed. After the cement has hardened, the permittee will extend the borehole through the roof of the mine slurry area.

2. Mechanical Integrity Testing

Permittee will conduct and pass a Mechanical Integrity Test (MIT) prior to starting injection procedures. The test shall consist of the annulus being pressured to 220 psi and held for one hour. If the test has less than a + or - 10 % loss in pressure, the well passes.

3. Vent/Withdrawal Well Construction

Vent/withdrawal wells will be constructed in the same manner as injection wells.

4. Witnessing

The MIT shall be witnessed by EPA personnel or their representatives. To arrange witnessing for these procedures, contact Mr. George Ford at (404) 562-9307. In lieu of witnessing well construction, permittee shall submit in a notarized document detailing the construction of all injection wells. Documentation shall be submitted to EPA thirty (30) days following completion of injection well construction.

5. Commencing Injection

Any well authorized by this permit may not commence injection until:

- (a) Construction is completed and the permittee has submitted to the Director, by certified mail with return receipt requested, a notice of completion using EPA Form 7520-10, and either:
  - (i) The Director has inspected or otherwise reviewed the injection well and finds it is in compliance with the conditions of the permit; or,

- (ii) The permittee has not received within thirteen (13) days of the date of the Director's receipt of the notice required above, notice from the Director of his or her intent to inspect, or otherwise review the new injection well, in which case prior inspection or review is waived and the permittee may commence injection.
- (b) Permittee has sampled and analyzed the injectate for antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, mercury, selenium and thallium.
- (c) Permittee has sent analysis results of the above to EPA, and has received approval from EPA for injection based on analysis for these metals.
- (d) Permittee has conducted and passed a MIT.
- (e) Permittee has posted acceptable financial responsibility with EPA to plug and abandon the injection system.
- (f) Permittee has completed the remediation of boreholes by the following schedule:
  - 1. Prior to injecting into well number six (6), permittee shall remediate all drilled holes found in slurry area. Remediation procedures are found in Part III.

#### SECTION C. OPERATING REQUIREMENTS

##### 1. Injection Operation

Beginning on the effective date and lasting through the term of this permit, the permittee is authorized to inject only a slurry of recycled fluids, make up water, and a mixture of fine grained reject solids (coal, rock, clay particles, pyrite fines) from the processing of raw coal at the River View fine coal recovery plant under the conditions below.

Coal combustion ash (fly ash) is specifically prohibited from being slurried and injected.

(a) Injection Zone

Injection shall be limited to the abandoned works of the KY No. 11 Coal Seam in the Ohio #11 Mine.

(b) Injection Operation

The coal slurry will be prepared at the River View fine coal recovery plant and transported to an injection well by an abrasion resistant piping system. The slurry will be pumped to the injection well during injection operations at 2,100 gallons per minute. The injection slurry will be injected by gravity into the slurry area defined on map Attachment A. Slurry water will be allowed to settle out of the slurry mixture and removed from the slurry area by the vent/water withdrawal well. The withdrawn slurry water will be discharged into a creek under KPDES permit number 001970. Slurry injection will proceed for several cycles until the slurry area is filled with fines. After the slurry area is filled with fines, the slurry injection operation will be discontinued and the well will be plugged and abandoned. The entire slurry area is below drainage of the creeks in the area.

(c) Maximum Contaminant Level (MCLs)

The injectate shall not exceed any primary drinking water standard listed in 40 C.F.R. Part 141 or other health based limits.

2. Loss of Mechanical Integrity During Operations

The permittee shall cease injection if a loss of mechanical integrity, as defined at 40 C.F.R. §146.8, becomes evident during operations. Operation shall not resume until the permittee has complied with the provision of Part II, Section G of this permit regarding a mechanical integrity demonstration.

3. Loss of Injection Zone Integrity

The permittee shall cease injection if a loss of injection zone integrity becomes evident during operations. Injection operations shall not be resumed until EPA has reviewed the injection operation and the cause(s) for the loss of injection zone integrity. This includes loss of integrity at the north boundary fault.

## SECTION D. MONITORING REQUIREMENTS

### 1. Sampling and Analysis Methods

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Grab samples shall be used for the laboratory analysis of the physical and chemical characteristics as specified in Part I, Section D, Item 3(a). Test methods and procedures shall be as specified in 40 C.F.R. § 136.3 or in 40 C.F.R. Part 261, Appendix III. When the analytical method for a particular parameter is not specified in either 40 C.F.R. § 136.3 or in 40 C.F.R. Part 261, Appendix III, the permittee must obtain the Director's approval of the methods used to generate all monitoring data. Reports to be generated from monitoring data are specified in Part I, Section E.

### 2. Injection Operation Monitoring

The permittee shall monitor the operation of the injection wells as follows:

<u>Parameter</u>	<u>Monitoring Frequency</u>
Injection Pressure (psig) at Wellhead	Weekly
Flow Rate (1,000 gallons/day) of Injected Fluid	Weekly
Cumulative Volume (1,000 gallons) of Injected Fluid	Weekly

Observation and recording of injection pressure, flow rate, and cumulative volume shall be made over equal time intervals beginning on the date on which each well commences operation. Recordings shall be of representative values.

### 3. Injection Fluid Analysis

The permittee shall conduct an injection fluid analysis prior to injection and annually thereafter. An analysis will also be required whenever changes are made to the injection fluid. The analysis must include:

- (a) pH, specific gravity, total dissolved solids, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, cyanide, lead, mercury, selenium, and thallium.
- (b) A list of all chemicals and their composition used for new flocculation. These lists should indicate the brand name of the product and manufacturer.

4. Other Tests

- (a) The permittee shall conduct additional analysis from fluid samples collected at five (5) monitoring stations, identified on EPA CLASS V SLURRY INJECTION PERMIT MAP as SIMW#1, SIMW#2, SIMW#3, SIMW#4, and SIMW#5. The first sample shall be three months after the effective date of this permit and every three months thereafter. These wells shall be analyzed for the same parameters as in Part 1, Section D, 3, (a) of this permit.
- (b) The permittee shall conduct additional analysis from fluid samples collected at seven (7) of the fifteen (15) water supply wells identified in the permit application as active water wells. The water wells selected for sampling should be representative of the area of review. The water wells shall be sampled for pH, acidity, alkalinity, specific conductivity, sulfate, and specific gravity.

5. Shutting Down Injection Operation

Permittee shall cease injection if any of the wells in Part I, Section D, 4, (a) or (b) exceed baseline levels. After shutting down injection operations, permittee will conduct a dye trace study to ascertain if the coal injection operations are impacting drinking water aquifers. If the injection operations are impacting drinking water aquifers in the area, injection operations can not proceed until the impact of the injection operation on the drinking water aquifers is corrected. Baseline levels will be determined by calculating an average from two analyses taken prior to injection. Drinking water aquifers are defined as containing less than 10,000 TDS and a flow of 1 gallon or more per minute for 24 hours.

SECTION E. REPORTING REQUIREMENTS

1. Reports on Well Tests and Workovers

Within thirty (30) days after completion of the activity, the permittee shall report to the Director the results of any tests other than those specified in Part I, Section B, Item 2.

2. Reporting of Monitoring Results

Monitoring results, as specified in Part I, Section D, Items 4(a) and 4(b), shall be reported every three (3) months and must be postmarked by the 15<sup>th</sup> day following each calendar quarter (January 15<sup>th</sup>, April 15<sup>th</sup>, July 15<sup>th</sup>, and October 15<sup>th</sup>). Monitoring results, as

specified in Part I, Section D, Item 2, shall be reported on a yearly basis on EPA Form 7520-11 and must be postmarked by the 28<sup>th</sup> day of the effective anniversary date

Copies of the monitoring results and reports required by Part I, Section D, and all other reports required by Part II, shall be submitted to the Director at the following address:

U. S. Environmental Protection Agency, Region 4  
Director, Water Protection Division  
Safe Drinking Water Branch  
Ground Water & SDWA Enforcement Section  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303-8960

3. Reporting of New Wells Drilled Within the Area of Review (AOR)

Within ten (10) days after spud date, the permittee shall report to the Director by certified mail, return receipt requested, the construction plans for any new well within the AOR of the permitted facility that will penetrate the injection zone. The permittee shall provide information on proposed construction (including location and quantities of cement), location and depth. This requirement applies to any construction activity regardless of ownership of the well. If the construction of the new well will not protect underground sources of drinking water (USDWs) from contamination, the Director may terminate the permit under 40 C.F.R. § 144.40(a)(3), if he or she determines that continued injection may endanger human health or the environment.

SECTION F. PLUGGING AND ABANDONMENT PLAN

Plugging and abandonment (P&A) of the permitted injection wells shall be in accordance with Part II, Section F of this permit and 40 C.F.R. § 146.10.

During the operating life of the wells, the injection facility may be screened for technologically enhanced naturally occurring radioactive material (NORM) by EPA or another party. If the permittee is notified by a party other than EPA, or becomes aware at any time that elevated levels of NORM have been detected at the injection facility, the permittee must notify EPA in writing of that fact no later than 45 days prior to the permittee's intent to P&A the well. EPA may require the permittee to revise the P&A plan to insure the safe disposal and proper management of elevated levels of NORM waste.

Plugging and abandonment (P&A) of the permitted injection and vent wells will be by placing a continuous column of cement from approximately ten (10) feet above the roof of the slurry area to three feet below existing surface inside the injector casing. After cement hardening, the casing



will be cut and removed three (3) feet below existing surface.

Plugging of the injection wells is estimated to cost \$ 2,300.00 per well and will require posting of a financial responsibility demonstration with EPA prior to injection.

Part III for EPA Permit KYV0051 (Remediation)

1. River View shall remediate the two lithological boreholes associated with the slurry area impacted by injection well number 6. The boreholes will be remediated by reopening the borehole to within 10 feet of the slurry area roof and placing a continuous column of Class A cement from 10 feet above the slurry roof to four feet below existing surface elevation. If the top of cement, after the cement has hardened has dropped. River View will bring the top of cement to four feet below existing surface elevation.
2. All remediation shall be witnessed by EPA personnel or its authorized representatives. If the permittee wishes it may submit copies of the drilling record and cement tickets in lieu of witnessing.